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09/915,348	07/27/2001	Tomoya Kodama	212091US2SRD	7192
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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			CHAU, COREY P	
			ART UNIT	PAPER NUMBER
			2644	

DATE MAILED: 10/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/915,348

Applicant(s)

KODAMA, TOMOYA

Examiner

Corey P. Chau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 August 2005.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 and 6-31 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-3, and 6-31 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. This action is in response to the request for continued examination filed on August 15, 2005 in which claims 4-5 are cancelled and claims 1-3 and 6-31 are pending.

#### ***Claim Rejections - 35 USC § 112***

2. Claims 13 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. The term "a long time" in claim 13 is a relative term which renders the claim indefinite. The term " a long time " is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Claim 13 recites "a long time", which is not clearly defined in the claim in a way to limit the claim, which renders the claim indefinite.

4. The term "unnecessary" in claim 14 is a relative term which renders the claim indefinite. The term " unnecessary " is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Claim 1 recites "unnecessary", which is not clearly defined in the claim in a way to limit the claim, which renders the claim indefinite.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 1, 17, 19, 20 and 22-23 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5908997 to Arnold et al (hereafter as Arnold).

7. Regarding Claim 1. Arnold discloses an audio processor which processes an input data stream via an external memory (36), comprising: a control processor (Fig. 3) to fetch in, when executing one of divided procedures of an audio process, a program and audio data corresponding to a next one of the procedures from the external memory which stores programs and a group of data used for sequentially executing the divided procedures of the audio process (Figs. 2 and 3); an internal memory (46) to store the program and audio data fetched from the external memory by the control

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processor and corresponding to the one and the next one of the procedures (Figs. 2 and 3); a coprocessor (94) to subserve the control processor to subject audio data of the input data stream to the divided procedures of the audio process based on the program fetched by the control processor (Figs. 2, 3, and 5; column 10, lines 24-67; column 11, line 66 to column 12 line 57).

8. Claim 17 is essentially similar to Claim 1 and is rejected for the same reasons stated above apropos to Claim 1.

9. Regarding Claim 19, Arnold discloses an audio data processing method for sequentially subjecting input data to a plurality of procedures of an audio process, comprising: storing a plurality of program modules corresponding to the plurality of procedures and data to be processed in an external memory (36)(Figs. 2 and 3); reading, when executing one process, a program module and to be processed data which are used for a next procedure of the audio process from the external memory a control processor (Figs. 2 and 3); and processing audio data of the readout data via a coprocessor (94) in accordance with the readout program module (Figs. 2, 3, and 5; column 10, lines 24-67; column 11, line 66 to column 12 line 57).

10. Regarding Claim 20, Arnold discloses said coprocessor (94) is configured to process only audio data (Figs. 2, 3, and 5).

11. Regarding Claim 22, Arnold discloses said coprocessor (94) is configured to process only audio data (Figs. 2, 3, and 5).

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12. Regarding Claim 23, Arnold discloses said coprocessor (94) is configured to process only audio data (Figs. 2, 3, and 5).

13. Claims 1-3, 6-19, and 24-31 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6275239 to Ezer et al. (hereafter as Ezer).

14. Regarding Claim 1, Ezer discloses an audio processor which processes an input data stream via an external memory (103)(Fig. 1), comprising: a control processor (101) to fetch in, when executing one of divided procedures of an audio process, a program and audio data corresponding to a next one of the procedures from the external memory (103) which stores programs and a group of data used for sequentially executing the divided procedures of the audio process (Figs. 5 and 6); an internal memory (405,407,416,425)(Fig. 4; claim 6) to store the program and audio data fetched from the external memory by the control processor and corresponding to the one and the next one of the procedures; a coprocessor (102) to subserve the control processor to subject audio data of the input data stream to the divided procedures of the audio process based on the program fetched by the control processor (Figs. 1 and 2; column 1, line 60 to column 2, line 31).

15. Regarding Claim 2, Ezer discloses the coprocessor is configured to subserve the control processor to subject sequentially the audio data to decoding, noise-less decoding, noise reduction, filter bank, and block switching in accordance with the programs and data fetched from the external memory in units of one procedure (Figs. 8 and 9; column 10, line 41 to column 11, line 42).

16. Regarding Claim 3, Ezer discloses the coprocessor (102) is configured to subserve the control processor to execute the program fetched in the internal memory from the external memory in accordance with progress of the procedures of the audio process (Fig. 4).

17. Regarding Claim 6, Ezer discloses the internal memory comprises an instruction memory (405) configured to store an instruction group of the program transferred from the external memory and a data memory (407) configured to store a data group transferred from the external memory, and the coprocessor subserves the control processor to perform the process based on the instruction group using the data in the data memory and data corresponding to a progress stage of audio data reconstruction to generate audio data (Fig. 4).

18. Regarding Claim 7, Ezer discloses a DMA controller (104,411) configured to control writing of data to the external memory, the instruction memory and the data memory, and reading of the data therefrom by a direct access memory transfer (Figs. 1 and 4).

19. Regarding Claim 8, Ezer discloses the control processor sequentially transfers a plurality of program modules corresponding to procedures of the audio process to the coprocessor from the external memory according to the progress of the procedures (Figs. 1 and 2; column 1, line 60 to column 2, line 31).

20. Regarding Claim 9, Ezer discloses the coprocessor (102) subserves the control processor to execute decoding of bit stream data, noiseless decoding, inverse quantization, scale factor, TNS processing, filter bank processing, and the block

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switching, in this order, to reconstruct audio data (Figs. 8 and 9; column 10, line 41 to column 11, line 42).

21. Regarding Claim 10, Ezer discloses the control processor includes a function of predicting which procedure is performed after the procedure which is currently performed (Figs. 4 and 6).

22. Regarding Claim 11, Ezer discloses the internal memory stores a program module which request the DMA controller for preparing, while continuing the procedure which is currently performed, the data group and instruction group that are required for the next procedure (Figs. 4 and 6).

23. Regarding Claim 12, Ezer discloses wherein a DMA transfer instruction is added to the program module in order to read the program module used in the next procedure from the external memory, the DMA transfer instruction allowing to read the program module with the DMA transfer by specifying the storage area (Figs. 4 and 6).

24. Regarding Claim 13, as best understood with regarding the 112, 2<sup>nd</sup> problem as mention above, Ezer discloses the control processor is further configured to save data stored in the internal memory from the internal memory to the external memory if determine to be unused for a long time by the control processor (Figs. 2, 4 and 7).

25. Regarding Claim 14, as best understood with regarding the 112, 2<sup>nd</sup> problem as mention above, Ezer discloses the control processor is further configured to release a storage region of the internal memory occupied by the data stored in the internal memory or a program if the data stored in the internal memory or the program becomes unnecessary (Figs. 2, 4, and 7).



26. Regarding Claim 15, Ezer discloses a data processing apparatus for processing an input data stream via an external memory (103) comprising: a control processor(101) to fetch in a program and data to be used for a next procedure of an audio process from programs for encoding and decoding, input/output data, work data, table data which are stored in the external memory (Figs. 5 and 6); a coprocessor (102) to subserve the control processor to perform data processing for coding or decoding according to the program fetched by the control processor (Figs. 1 and 2; column 1, line 60 to column 2, line 31); a data memory (407) to store the data fetched by the control processor; an instruction memory (405) to store the control programs to be applied to the processor; and a DMA controller (104,411) to transfer the data among the instruction memory and the data memory and the external memory (Fig. 4), the control processor controlling the DMA controller to perform the encoding and the decoding using the coprocessor, read program and data required for the next procedure from the external memory, and write data obtained by the procedure into the external memory (Figs. 4 and 6).

27. Regarding Claim 16, Ezer discloses the coprocessor temporally stops when accessing of the DMA controller to the instruction memory or the data memory competes with accessing of the coprocessor to the instruction memory or the data memory (Fig. 4).

28. Claim 17 is essentially similar to Claim 1 and is rejected for the same reasons stated above apropos to Claim 1.

29. Claim 18 is essentially similar to Claim 2 and is rejected for the same reasons stated above apropos to Claim 2.

30. Regarding Claim 19, Ezer discloses an audio data processing method for sequentially subjecting input data to a plurality of procedures of an audio process, comprising: storing a plurality of program modules corresponding to the plurality of procedures and data to be processed in an external memory (103); reading, when executing one process, a program module and to be processed data which are used for a next procedure of the audio process from the external memory a control processor (101); and processing audio data of the readout data via a coprocessor (102) in accordance with the readout program module (Fig. 2).

31. Regarding Claim 24, Ezer discloses the internal memory includes an instruction memory and a data memory, and at least two parallel busses lead from the instruction memory and the data memory to the coprocessor (Fig. 4).

32. Regarding Claim 25, Ezer discloses at least two parallel busses lead from the instruction memory and the data memory to the coprocessor (Fig. 4).

33. Regarding Claim 26, Ezer discloses said fetching further comprises: transferring the programs and the audio data by at least two parallel busses from the internal memory to the coprocessor (Fig. 4).

34. Regarding Claim 27, Ezer discloses said storing the program and the audio data in the internal memory, the audio data is stored to a data memory, and the programs are stored to an instruction memory (Fig. 4).

35. Regarding Claim 28, Ezer discloses said reading further comprises: storing the program module and the to-be-processed data from the external memory (103) to an internal memory (Figs. 2 and 4); and transferring the program module and the to-be-

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processed data by at least two parallel busses from the internal memory to the coprocessor (Figs. 2 and 4).

36. Regarding Claim 29, Ezer discloses the internal memory includes an instruction memory (405) and a data memory (407), and wherein said storing, the to-be-processed data is stored to the data memory and the program module is stored to the instruction memory (Fig. 4).

37. Regarding Claim 30, Ezer discloses an audio input/output interface (Fig. 1); and an internal bus; wherein the internal bus links the control processor, the coprocessor and the audio input/output interface together (Figs. 4).

38. Regarding Claim 31, Ezer discloses an audio input/output interface (Fig. 1); and an internal bus; wherein the internal bus links the control processor, the coprocessor and the audio input/output interface together (Figs. 2 and 4).

### ***Claim Rejections - 35 USC § 103***

39. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

40. Claims 15 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5908997 to Arnold in view of U.S. Patent No. 6275239 to Ezer.

41. Regarding Claim 15, Arnold discloses a data processing apparatus for processing an input data stream via an external memory (36) comprising: a control

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processor (Fig. 3) to fetch in a program and data to be used for a next procedure of an audio process from programs for encoding and decoding, input/output data, work data, table data which are stored in the external memory (Figs. 2 and 3); a coprocessor (94) to subserve the control processor to perform data processing for coding or decoding according to the program fetched by the control processor (Figs. 2, 3 and 5; column 10, lines 24-67; column 11, line 66 to column 12, line 57); a DMA controller (Figs. 2 and 3). Arnold discloses a DMA controller (Figs. 2, 3, and 5), but only generally; no specific hardware or software is taught. Therefore it would have been obvious to one having ordinary skill in the art to seek known DMA controller. Ezer discloses a DMA controller comprising a data memory (407) to store the data fetched by the control processor; an instruction memory (405) to store the control programs to be applied to the processor (Fig. 4). It would have been obvious to one having ordinary skill in the art to employ any known DMA controller. Therefore it would have been obvious to one having ordinary skill in the art to modify Arnold with the teaching of Ezer to provide the DMA controller with a data memory (407) to store the data fetched by the control processor; an instruction memory (405) to store the control programs to be applied to the processor. Therefore, Arnold as modified discloses the DMA controller to transfers the data among the instruction memory and the data memory and the external memory, the control processor controlling the DMA controller to perform the encoding and the decoding using the coprocessor, read program and data required for the next procedure from the external memory, and write data obtained by the procedure into the external memory (Figs. 2, 3, and 5; column 10, lines 24-67; column 11, line 66 to column 12 line 57).

42. Regarding Claim 21, Arnold as modified discloses said coprocessor (94) is configured to process only audio data (Figs. 2, 3, and 5).

### ***Response to Arguments***

43. Applicant's arguments filed 8/15/2005 have been fully considered but they are not persuasive.

44. With regards to Applicant's argument on page 11, stating that "Arnold does not teach a control processor to fetch in a program and an audio data", has been noted. However, the Examiner respectfully disagrees. Arnold discloses the device driver 178 causes a hardware interrupt via the mailbox mechanism 162 to the MIDI co-processor CPU 94. In response, the MIDI co-processor CPU 94 reads the MIDI output message from the device driver 178 through functions in the MIDI co-processor control program 191. The co-processor control program 191 plays the MIDI data by interacting with the audio processor 151 **to load and play** the correct sample of the correct instrument sample set. In addition, the system access bar 202 further includes a button 344, marked for example PLAYER, for accessing a screen or control graphic 346 for **selecting and playing digital information** from a variety of sources. The player screen 346 allows the user to control play of standard MIDI files from the hard drive, CD drive or floppy disk drive; CD audio tracks; recordings made on the piano and the like. Furthermore, Arnold discloses there can be a plurality, such as four, single instrument tracks 428. When a single instrument track 428 is marked for recording, the current single instrument sound selected on the single instrument selection screen 200 (FIG. 7)

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is heard and is recorded onto the track. Each track 428 preferably has the following **attributes and controls (visual order is not required by this lists order): track number, track name, volume, set-to-current**. Therefore Arnold reads on “control processor to fetch in a program and an audio data. See Figs. 1-3 and 5; column 15, lines 45-52; column 21, lines 42-49; column 22, line 65 to column 23, line 5.

45. With respect to Applicant's argument on page 12, stating that “the program used to process the audio data are resident within the Arnold processor and Arnold does not teach fetching audio data and a program by which the fetched audio data are processed” has been noted. However, the Examiner respectfully disagrees. Arnold discloses there can be a plurality, such as four, single instrument tracks 428. When a single instrument track 428 is marked for recording, the current single instrument sound selected on the single instrument selection screen 200 (FIG. 7) is heard and is recorded onto the track. Each track 428 preferably has the following **attributes and controls (visual order is not required by this lists order): track number, track name, volume, set-to-current**. Therefore, Arnold reads on fetching audio data and a program by which the fetched audio data are processed. See Figs. 1-3 and 5; column 22, line 65 to column 23, line 5.

46. With respect to Applicant's argument on page 12, stating that “a midi sound module receiving instructions to generate analog audio signals, or a multimedia audio subsystem processing various audio input sources, as disclosed by Arnold, is not a control processor that fetches in a program and a audio data corresponding to a next one of divided procedures from the external memory, when executing one of divided

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procedures of an audio process, as claimed by Applicant", has been noted. However, the Examiner respectfully disagrees. See above arguments.

47. With respect to Applicant's argument on page 13, stating that "Ezer does not teach or suggest Applicant's claimed features regarding a control processor fetch in a program and an audio data corresponding to a next one of divided procedures from the external memory, when executing one of divided procedure of an audio process and an **internal memory to store the program and audio data fetched from the external memory**", has been noted. However, the Examiner respectfully disagrees. Ezer discloses an instruction memory 405 and a data memory 407, which read on internal memory to store the program and audio data fetched from the external memory. See Fig. 4.

48. With respect to Applicant's argument on page 13, stating that "transferring data from a DRAM to a CPU or an IO port, as taught by Ezer, **is not** fetching in a program data and an audio data from an external memory, and storing the program data and audio data to the internal memory, as claimed by Applicant", has been noted. Ezer discloses fetching in a program data and an audio data from an external memory, and storing the program data and audio data to the internal memory, see Fig. 7.

### ***Conclusion***

49. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6166748 to Van Hook et al.


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50. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey P. Chau whose telephone number is (571)272-7514. The examiner can normally be reached on Monday - Friday 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on (571)272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

October 2, 2005  
CPC

  
VIVIAN CHIN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600